CNO and Secretary of the Navy Environmental Awards

Pollution Prevention: Non-Industrial Installation

Introduction

The Naval Air Engineering Station (NAES) is the Shore Station Management component of the Naval Air Warfare Center Aircraft Division Lakehurst. Collectively known as Navy Lakehurst, the organization's mission is Aircraft Platform Interface, which is the safe effective operation of aircraft to, from, and on all aviation platforms. To accomplish this mission, Navy Lakehurst currently employs over 1900 civilian employees, consisting primarily of engineers, technicians, logisticians, acquisition experts, and manufacturing support specialists. In addition, Navy Lakehurst has approximately 230 military personnel. The Station encompasses 7430 acres and contains 446 structures and 328 buildings. Facilities include two 5,000-foot operational runways; a 12,000-foot runway equipped with catapult and arresting gear and five test tracks.

The Station and the surrounding area are located within the Pinelands National Reserve, the most extensive undeveloped land tract of the Middle Atlantic Seaboard. The Pinelands consist of a delicately balanced ecosystem and covers the largest drinking water aquifer in the Northeast. Subsequently, the Station's groundwater is subjected to the strictest cleanup levels in the region.

Background

Part of the Naval Air Systems Command, "Navy Lakehurst" consists of NAES and components of the Naval Air Warfare Center, Aircraft Division (NAWCAD). NAES constitutes the Shore Station Management competency (8.0) and includes the Administration, Supply, Public Works, Security, Safety, Morale Welfare and Recreation, and Air Operations Departments. Other NAWCAD competencies located at Navy Lakehurst include Program Management (1.0), Contracts (2.0), Logistics (3.0), Research and Engineering (4.0), Aircraft Launch and Recovery Equipment / Support Equipment (ALRE/SE) (4.8), and Corporate Operations (7.0). Those competencies having the most impact on the environment include the Public Works Department of 8.0, the Prototype and Manufacturing Department (PMD) of 4.8, and the Product Evaluation and Verification Department (PEVD) also of 4.8.

PMD consists of a 240,000 square foot industrial facility and includes Metal Fabrication and Welding, Machining, Heat Treating, Paint, Electronics, Prototype, Maintenance, and Cable shops. PEVD includes two in-ground catapults, identical to those aboard aircraft carriers, used for troubleshooting and developmental evaluation of catapult improvements; a Runway Arrested Landing Site (RALS) with installed shipboard type arresting gear; a Jet Car Track Site for testing arresting gear components; an Elevated Fixed Platform for testing of an installed Recovery Assist, Securing and Traversing (RAST) system; and a Jet Blast Deflector (JBD) test site used for development and evaluation of JBD

components. In addition, there is an Outdoor Engine Test Site used to test jet engines in various configurations.

The annual hazardous waste generated by all activities located at NAES exceeded 780,000 pounds as recently as 1993.

Organization

The Pollution Prevention Program is under the direction of the Hazardous Materials Control and Management (HMC&M) program. Residing within the Supply Department, the HMC&M program is a full service program chartered with the Lifecycle Management of Hazardous Material / Hazardous Waste. This includes control over the procurement, storage and use of Hazardous Materials and the generation of Hazardous Wastes for the entire NAES facility and all tenant commands.

The Environmental Division of the Public Works Department is responsible for the air and water pollution prevention programs including all permitting, ozone depleting substance (ODS) phase out, solid waste, and Spill Prevention / Discharge Prevention, Containment, and Countermeasures (SPCC / DPCC) planning efforts. In addition, Environmental is responsible for the Installation Restoration program and has successfully completed cleanup of 32 of 45 National Priorities List (NPL) sites.

NAES has chartered the Pollution Prevention (P2) Team as an interdepartmental team with representation from both NAES and NAWC. Chaired by the station Executive Officer the team meets monthly and includes representatives from PW, PMD, and PEVD, Environmental, HMC&M, Recycling, and NAWCAD Engineering. The primary strategy for pollution prevention is source reduction, including material substitution, process-specific changes, and increased efficiency in the ordering and use of hazardous materials. When source reduction is not possible, materials are recycled, reused, or captured and disposed in an environmentally sound manner and in compliance with applicable regulations. The less desirable methods of waste disposal, such as landfilling, are considered only as a last resort for handling the station's waste.

Program Summary

The objectives of the NAES Pollution Prevention Program and their degree of attainment include:

HM management

- Develop an AUL for each activity – ***COMPLETED*** January 1998
- Institute CHRIMP - *Implementation underway*; EDC June 1999

Training, Awareness and Incentive Programs

- Develop comprehensive P2 awareness program – ***COMPLETED***
- Develop Incentive Program – ***COMPLETED***
- Develop P2 Plan – ***COMPLETED*** December 1995; revised May 1998

HW Generation

- 60% reduction by 31 Dec 1999 (baseline 1994) – ***ACHIEVED*** 31 Dec 1997

MSW Generation

- Reduce MSW generation by 10% per year from FY96 through FY-2000 (baseline FY95) – ***ACHIEVED*** 30 Sep 1996

Ozone Depleting Substances

- Eliminate Class I by Jan 1996 – ***ACHIEVED***
- Remove non-mission critical Halon 1211 Fire Extinguishers by Jan 1996 - ***ACHIEVED***
- Convert or replace CFC HVAC systems by 31 Dec 2000 – ***ACHIEVED***
- Convert or replace Halon 1301 fixed Fire Protection systems by 31 Dec 2000 - ***ACHIEVED***

The NAES Pollution Prevention program has provided the necessary impetus to pull all personnel together who are capable of initiating necessary change. For example, many product substitutions require that design specifications be waived or altered. In many cases, the projects completed at Navy Lakehurst are designed by engineers at Navy Lakehurst. Consequently, waiving specifications is not as daunting a task because the originator of the requirement can be contacted directly. Also, the Navy Environmental Leadership Program management resides at Navy Lakehurst and is an active participant in the station's pollution prevention efforts.

Accomplishments

The station has taken positive steps toward the implementation of a CHRIMP program and the result has been outstanding*: a 71% reduction in hazardous waste disposal between 1994 and 1997* (342,000 pounds in 1994 to 100,000 pounds in 1997). The trend continues in 1998!

Material Substitution

The HMC&M Team developed a new, comprehensive, digital AUL as the first step toward implementing CHRIMP. At the same time, the AUL addition process was revised in order to force the buyer to select the product with the least impact on the environment while still accomplishing the mission. Requests for AUL additions must go through the HMC&M office, Environmental, Safety, and Industrial Hygiene. If necessary, the request is forwarded to the Engineering design group that originated the specification in search of a less hazardous substitute.

Using the list of SARA chemicals in use at NAES as a starting point, the HMC&M Team has begun to look at the processes where these chemicals are being used and are actively seeking less hazardous substitutes. Meticulous review of HM orders has resulted in many successful substitutions reducing the potential to damage the environment while also reducing costs. Examples include hand-selecting paints that meet the same military specifications but with a reduced VOC content. In addition, Orange Degreaser is being substituted for A-99 and PD-680 and has been determined to be as effective as solvent based degreasers.

Aqueous parts washers are being acquired to eliminate the use of solvents from those areas where appropriate. Aqueous parts washers do not require storage of HM, and when the washer fluid does need to be changed, it is less hazardous (perhaps even non-hazardous) and therefore potentially much less costly to dispose. Likewise, using Simple Green and Orange Degreaser in other operations can eliminate solvents as a source of HM and HW on the station. The net result is less potential spills; less hazardous waste generated, and reduced costs.

Process Modifications

In years past, NAES generated more ethylene glycol than any other SARA chemical. Working with the Navy Environmental Leadership Program, the station has acquired an in-line ethylene glycol recycling unit for arresting gear fluid. This unit enables the fluid to be pumped from the arresting gear directly into the recycling unit where it is passed through a series of filters and pumped right back into the arresting gear.

This process precludes the maintenance team from removing the fluid for recycling at another location that increases workload and increases risk of spills. The in-line recycling unit is being tested for fleet use and will be used to recycle arresting gear fluid on aircraft carriers. In addition, the station has an ethylene glycol batch-recycling unit that can be used for recycling both automotive anti-freeze and arresting gear fluid. By developing processes to recycle ethylene glycol, this waste stream should be reduced significantly, if not virtually eliminated. Also, though the process does require the addition of some fresh ethylene glycol, the purchase of this HM will be significantly reduced.

Navy Lakehurst is also operating a solvent distillation / recycling unit. In addition to the traditional use of recycling A-99 and PD-680, testing is being conducted to determine if it can effectively recycle Envirosolv to eliminate this source of waste.

Improved Material Management

NAES has begun a concerted effort to implement CHRIMP. All HM over a 7-day supply was removed from the shops within the industrial facility and returned to the control of the HMC&M program. Because the HM ordering system is financial based (RAPS), the HICS database must be manually checked for inventory. Every HM order is reviewed by HMC&M personnel to determine if the material is already available on the station. If it is not, the order is reviewed for potential substitutes which may be in stock. Though the amount of material stored in the HM warehouse has increased, the risk of spills and exposure to personnel has been severely limited and cost avoidance issues now exceed $13,000 annually.

Hazardous waste disposal has been reduced dramatically as depicted in the following chart:

YEAR	HW DISPOSED (lbs.) *
1994	341,647
1995	302,515
1996	284,392
1997	100,056
1998	95,000 (projected)

(* Source: Hazardous Waste Annual Report)

These efforts have directly contributed to significant reductions in the cost of disposal with **single year savings of $50,929 or 37% just last year!**

Compliance with Executive Order 12856

Navy Lakehurst has complied with all aspects of Executive Order (EO) 12856. The station does not exceed reporting thresholds for any toxic chemicals covered under the "Toxic Chemical Reduction Goals." As discussed previously, the only chemical that approaches a reporting threshold is ethylene glycol, and the station has implemented recycling processes which will virtually eliminate this substance from the waste stream. NAES has complied with all facets of the Emergency Planning and Community Right-to-Know Act (EPCRA) and provides required annual reports to local and state authorities.